SAKURA
interaction

User instructions

## Elephant Dental's mission statement.

Our aim is to make a positive contribution to society through the development, manufacture and distribution of innovative, high-quality product systems that are guaranteed to facilitate the work of dental professionals and increase patient satisfaction.

Elephant

dental health products

## Choice of sub-structure (indication):

Sakura Interaction is the low expanding, low-melting dental ceramic for zircon oxide sub-structures. Sakura Interaction can be easily fired on zircon oxide sub-structures with a thermal expansion coefficient between 10.0 and 10.6 µm/m.K (25-500°C).

## Contraindication:

Metal, alumina or glass-infiltrated zirconia sub-structures. If patients are known to be allergic to any of the components, the material should not be applied.

Rx only

## Controlled interaction.

Sakura Interaction is the new lowexpanding, low-melting generation of controlled-interativity ceramics for zircon oxide sub-structures. With this ceramic, it is possible to prepare a restoration which exhibits precise control over the light and colour characteristics once it has been placed in the patient's mouth. The layering structure consisting of previously applied masses creates a natural interaction of opalescence and fluorescence. With this intelligent type of ceramics, the restoration reflects every incidence of light as naturally as a normal tooth would.

## Control and precision.

The layering structure is created in the usual way. The dental technician can exercise precise control over the restoration's layers, ensuring that the result meets all requirements. The highly pragmatic and simple organisation of the harmonised system of colours and powders is reflected in all the components of our product range, the ceramic powders (jar labels), the layer organiser and the layering instructions.

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## The interaction of fluorescence, opalescence, colour and light yields natural aesthetics.

With its functional, layered structure, Sakura Interaction has a natural look. Consequently, all layers, whether deep in the restoration or close to the roots are fluorescent, while the remaining layers are predominantly transparent and opalescent. This functional division of properties – where properties are geared to one another precisely – makes this patented system unique and gives rise to the interplay (interaction) that occurs automatically in normal structures. As a result, crowns have a completely natural appearance.

Optical inspection after thermo shock test

## Effective combination with zircon oxide:

During the development stage, Sakura Interaction was tested on the following zircon oxide sub-structures:

**Cercon Base (DeguDent)**
**Procera All Zirkon (Nobel biocare)**
**DC Zirkon (DCS)**
**YZ Cubes (Vita)**
**Lava Frame (3M ESPE)**

**All materials performed well when used with Sakura Interaction.**

## Preparation of sub-structures:

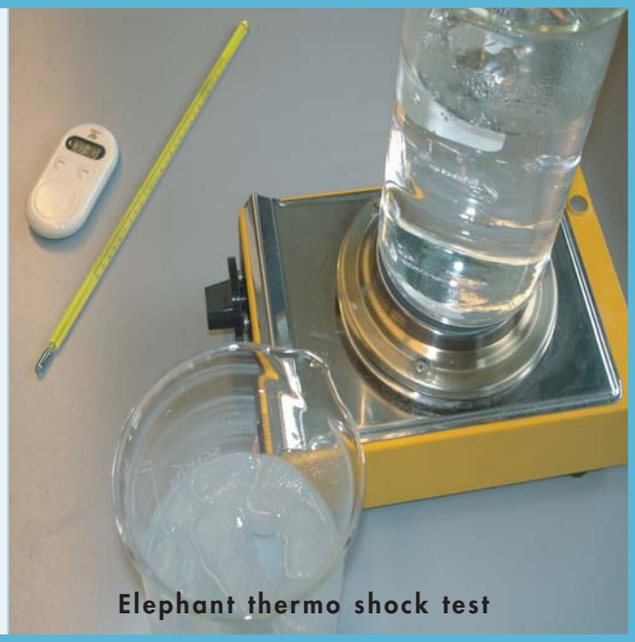
**When firing Sakura Interaction, the firing instructions of the supplier of the zircon oxide sub-structure materials should be observed.**

(This was the case in all tests described in these pages)

## Thermo shock test.

All the combinations referred to must be subjected to the Elephant thermo shock test. During this test, ceramic-faced bridges are alternately submerged twenty times in ice water and boiling water. The material is then checked for cracks, and checked again for tension cracks the next day. All combinations passed the test.

**Elephant Dental**



Elephant thermo shock test

## Chewing simulation test.

The Sakura Interaction combination's exterior was tested by the University of Regensburg and approved. The chewing simulation test performed by the university has become a proven method for simulating five years of chewing activity in the mouth. Three unit bridges are subjected 1.2 million times to 50N chewing pressure at various temperatures.

**University of Regensburg**
**Regensburg, Germany**

Elephant pressure test

## Pressure testing.

After the thermal endurance tests, all preparations were tested for maximum pressure endurance. The pressure at which a combination of a sub-structure and a firing ceramic collapses is an indication of its strength. The measured values of all combinations are comparable to measured metal-ceramic values.

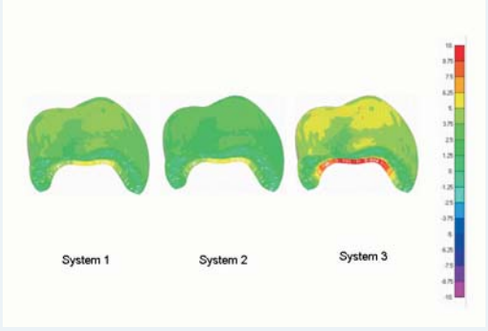
**Elephant Dental**

Regensburger Artificial Mouth Type #3

## Stress analysis.

Sakura Interaction's thermal expansion coefficient makes it ideal for use on zircon oxide sub-structures. Elephant has opted for a thermal expansion coefficient (TEC) of 9.9 µm/m.K (25-500ºC), in accordance with a calculation model the University of Amsterdam uses to calculate cooling stress in ceramic-faced crowns.

This method is based on the facing ceramic's expansion values, the sub-structure material and the thickness of the applied layer.




System 1 is the proven Carrara PdF / Carrara Interaction combination.

System 2, Sakura Interaction / zircon oxide, reveals the same tension pattern (green).

System 3 indicates the stress distribution in a facing ceramic that expands insufficiently. This produces relatively high tensile stress in zircon oxide (red), which the material absorbs effectively. However, tensile stress in the occlusal plane (yellow) is also too high and may have adverse effects.

**ACTA, University of Amsterdam**
**Amsterdam, The Netherlands**

CERTIFICATE
Biocompatibility Test

Material tested:
**Sakura Interaction**
Dental ceramic , EN ISO 6872

Composition:
Paste opaque-, dentin- and incisal material: silicate glass-ceramic, pigments.

Manufacturer:
Elephant Dental B.V.
Verlengde Lageweg 10
1628 PM Hoorn
The Netherlands

Tests:
We confirm that the following tests for determining the biocompatibility of the dental ceramic were carried out in accordance with the international standards EN ISO 10993, "Biological evaluation of medical devices" (EN ISO 10993-1, EN ISO 10993-2, EN ISO 10993-5, EN ISO 10993-12) and EN ISO 7405 „Dentistry - Preclinical evaluation of biocompatibility of medical devices used in dentistry - Test methods for dental materials". The tests were performed according to the OECD directives 'Good Laboratory Practice' (GLP) by the Institute BSL Bioservice Scientific Laboratories. The tests were coordinated and monitored by Dr. Henning + Co. The test items were produced by a commercial dental laboratory according to the instructions of Elephant Dental B.V.

Cytotoxicity:
The cytotoxic potential of the dental ceramic was tested in vitro with L-929 fibroblasts. Method „Test on extracts", XTT staining, EN ISO 10993-5:1999, EN ISO 10993-12:2002 and EN ISO 7405:1997 (5.4.a)3).

Test result:
**Sakura Interaction had no cytotoxic potential.**

Basel, 04.02.2005

Dr. Henning + Co.
Dental Engineering
Steinenvorstadt 13
CH-4051 Basel

**Sakura Interaction's biocertificate**

## Biocompatibility testing.

Sakura Interaction's cytotoxic potential was tested in vitro using the L-929 fibroblast method; "Test on extracts", XTT staining in accordance with EN ISO 10993-5:1999, EN ISO 10993-12:2002 and EN ISO 7405:1997 (5.4.a)3).

**Test result: Sakura Interaction has no cytotoxic potential**

**Dr. Henning & Co Dental Engineering**
**Basel, Switzerland**

**Layer organizer**

## The layer organizer.

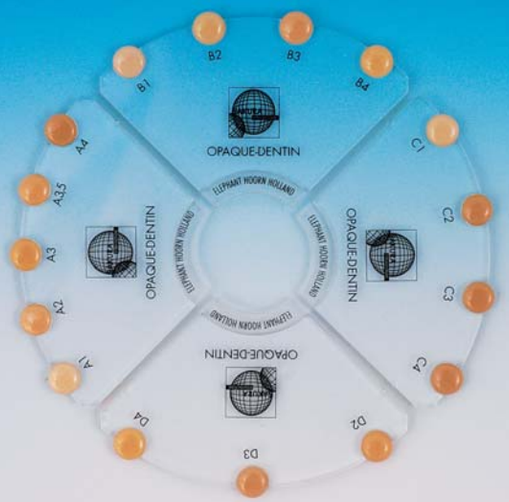
The layer organiser is a practical and easy-to-use tool to determine which powders are needed to create the intended colour. From bottom to top – *paste opaque* to *incisal* –, the powders associated with the colours involved can be determined accurately.

## Slide open and read.

If you slide open the large lower part of the layer organizer, you can read, in logical order, which colour combinations are required to create the layer structure displayed.

## Individual wishes are easily met.

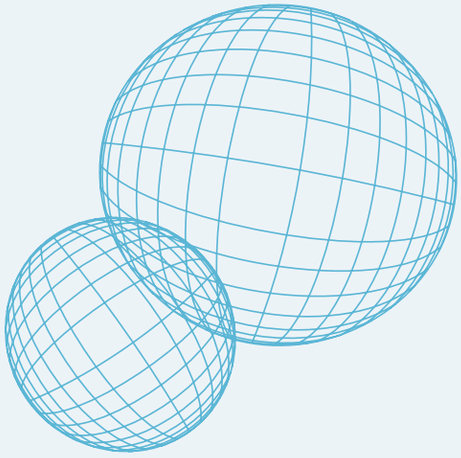
The upper part of the layer organizer shows the options for specific colours.

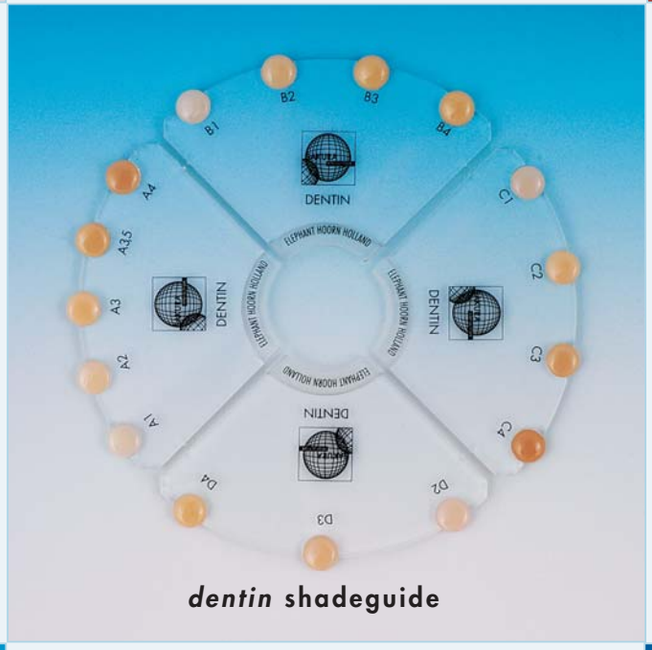



***opaque dentin* shadeguide**

## Colour determination and Sakura Interaction shadeguides.

Sakura Interaction is 100% compatible with Lumin® Vacuüm/Vitapan®Classical. However, it is vital that technicians working on the restoration use the same reference material and communicate clearly with one another. The Sakura Interaction shadeguide pellets are made of the original ceramic, which enables simple and accurate colour determination.






***dentin* shadeguide**

## Accurate colours.

The Sakura Interaction system employs colour information in a consistent manner. The colour of the completed restoration matches the tooth's natural colour. Powder combinations can easily be determined using the *layer organiser.*

***incisal* shadeguide**

## Instructions for optimal colour determination.

Ask yourself the following questions from time to time:

- Am I determining the colour under consistent light conditions?
- Is my perception affected by the environment (e.g. sharp colour contrasts)?
- Am I using the right shadeguide?
- Am I examining the patient's mouth under the optimal 45° angle?

**Shadeguide of original ceramic**

**Recommended tools**

## 1 Preparation of sub-structures:

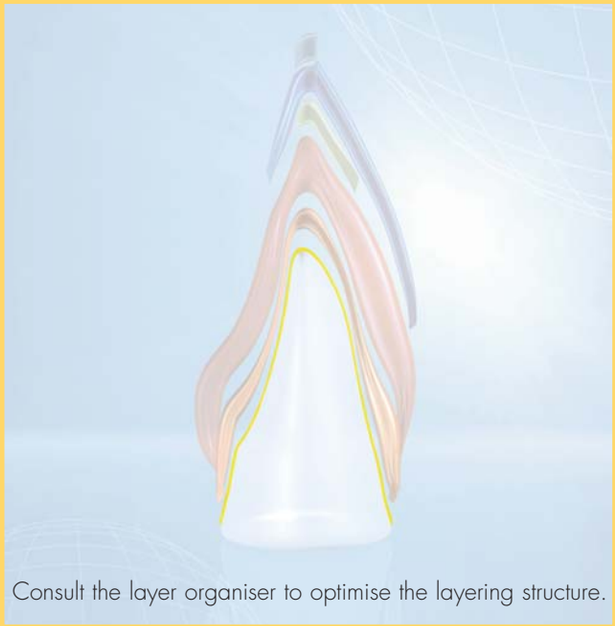
**When firing Sakura Interaction, the firing instructions of the supplier of the zircon oxide sub-structure materials should be observed.**

(This was the case in all tests described in these pages)

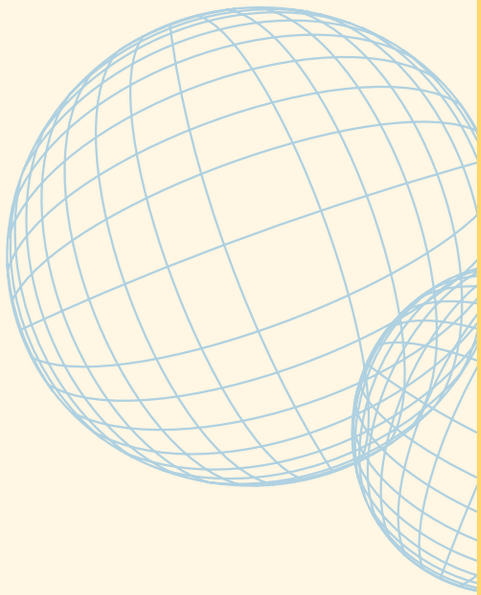
1 Zircon oxide sub-structure

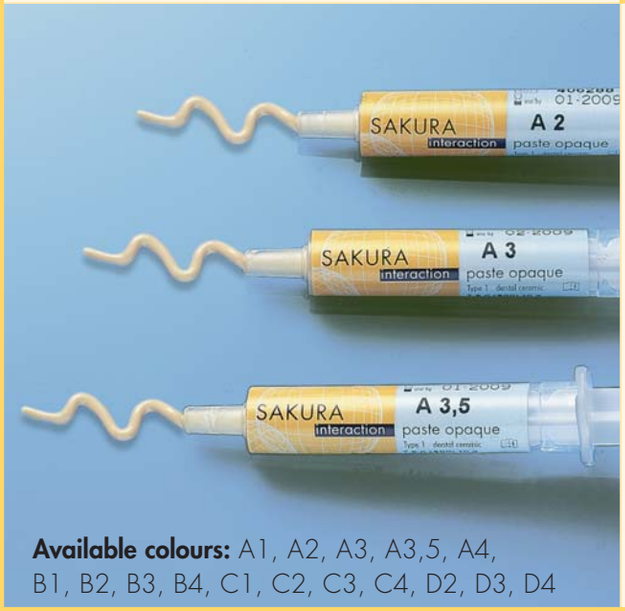
## i *Pencil and Pencil (Brush) Cleaner:*

Important: After removing it from its package, the *paste opaque* is ready for immediate use. Use the enclosed *brush cleaner* only to moisten or clean the brush. During processing, do not use water to clean the brush. If *paste opaque* comes into contact with water, cracks or air bubbles may form in the opaque layer during firing.



Consult the layer organiser to optimise the layering structure.






**Available colours:** A1, A2, A3, A3,5, A4, B1, B2, B3, B4, C1, C2, C3, C4, D2, D3, D4

## 2 Processing:

**Opaque layer:**

- Take the required quantity of *paste opaque* from the syringe.
- Use the enclosed *paste opaque brush*.
- Mix the material thoroughly.
- Apply the layer of opaque in even vertical strokes.
- For a smoother surface, file the applied layer to increase its density.

### Firing chart:

| Drying | Starting temp. | Vacuum starting temp. | Rate of heat increase |
|---|---|---|---|
| 7 min. | 400 °C | 400 °C | 60 °C/min. |

| Final temp. | Retention time | Surface appearance |
|---|---|---|
| 920 °C | 2 min. | eggshell gloss |

2 Applied *paste opaque*

**3** Applying margin

**Available in the following colours:**
*margin* 1A2, 3A4, 1B2, 3B4, 1C2, 3C4 & Booster
*margin correction** Bright, Medium & Dark

**4** Shoulder after firing

## 3 Processing:

**1st margin firing:**

- Apply a die hardener agent onto the die and allow to dry well.
- Apply a ceramic separation agent to the die and dry with compressed air.
- Use margin liquid to mix the margin into a cream-like consistency.
- Apply the margin material in the usual manner. Before proceeding, condense well and dry, if required, the material with a hairdryer.
- Remove the object from the die.
- Fire the ceramic in accordance with the firing chart.

**Firing chart:**

| Drying | Starting temp. | Vacuum Starting temp. | Rate of heat increase |
|---|---|---|---|
| 8–10 min. | 450°C | 450°C | 60°C/min. |
| Final temp. | Retention time | | Surface appearance |
| 890°C | 1 min. with vacuum | | matte finish |

Consult the layer organiser to optimise the layering structure.

## 4 Processing:

**2nd margin firing:**

- Use margin liquid to mix the margin into a cream-like consistency.
- Apply the margin material in the usual manner. Before proceeding, condense well and dry, if required, the material with a hairdryer
- Remove the object from the die.
- Fire the ceramic in accordance with the firing chart.

**Firing chart:**

| Drying | Starting temp. | Vacuum starting temp. | Rate of heat increase |
|---|---|---|---|
| 8–10 min. | 450°C | 450°C | 60°C/min. |
| Final temp. | Retention time | | Surface appearance |
| 890°C | 1 min. with vacuum | | matte finish |

* For more information, see the Sakura Interaction margin user instructions.

**Available colours:** A1, A2, A3, A3,5, A4, B1, B2, B3, B4, C1, C2, C3, C4, D2, D3, D4

## 5 Processing:

Together, the *opaque dentin* and *dentin* constitute the basic layer of colour of the entire layering structure. With Sakura Interaction, the fluorescent layers are concentrated in more deeply lying powders. As a result, the reflected white light enhances the opalescent characteristics of the transparent upper layers. The *opaque dentin* can also be applied where little space is available and less translucency is required, for instance at the gingival or palatinal/lingual area of intermediate elements and at places where there is little space for a standard ceramic structure.

**5** Applying the *opaque dentin*

**4** **Applied *dentin***

**Available colours:** A1, A2, A3, A3,5, A4, B1, B2, B3, B4, C1, C2, C3, C4, D2, D3, D4

**5** **Reduced *dentin* (cutback)**

## 4 Processing:

- Use *carving liquid* to mix the selected *dentin* to a cream-like consistency.
- *Superwet liquid* may be used for larger restorations to enable longer working time.
- Examine the unreduced restoration to determine the proper dimensions of the crown and remove any excess material (cutback technique).
  – The restoration may also be worked directly in a final form.

Consult the layer organiser to optimise the layering scheme.

## 5 Processing:

- Cutback the material to create the desired space for the incisal material.
- More material must be removed when *action-i dentin* is used.
- An irregularly shaped dentin core ensures optimal distribution of light (see photo)

## i Standard or individual:

Use of either a standard or individual layering structure is determined by the amount of cutback of the dentins.

To create a standard layering structure, follow the steps indicated on the pictures on page 14. *Incisal* is added to the reduced *dentin*, after which the crown is fired. To achieve individual layering characteristics, use *action-i dentins* and *x-tra incisals*.

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| paste opaque | A1 | A2 | A3 | A3,5 | A4 | B1 | B2 | B3 | B4 | C1 | C2 | C3 | C4 | D2 | D3 | D4 |
| opaque dentin | A1 | A2 | A3 | A3,5 | A4 | B1 | B2 | B3 | B4 | C1 | C2 | C3 | C4 | D2 | D3 | D4 |
| dentin | A1 | A2 | A3 | A3,5 | A4 | B1 | B2 | B3 | B4 | C1 | C2 | C3 | C4 | D2 | D3 | D4 |
| action-i dentin | 1A2 | | 3A4 | | | 1B2 | | 3B4 | | 1C2 | | 3C4 | | 1A2 | 1B2 | 1C2 |
| x-tra incisal | x-tra i blue/x-tra i red/x-tra i grey/x-tra i orange/x-tra i clear | | | | | | | | | | | | | | | |
| | x-tra i bright/x-tra i medium/x-tra i dark | | | | | | | | | | | | | | | |
| incisal | 58 | | 59 | | 60 | 57 | | 59 | | 60 | | 59 | 60 | | 59 | |

6 Applied *action-i dentin*

SAKURA interaction
action-i dentin

**Available colours:**
1A2, 3A4, 1B2, 3B4, 1C2, 3C4

## 6 Processing:

*Action-i dentins* are fluorescent dentins that have been sorted according to colour and brightness. They can be used to accentuate the characteristics in the incisal section of the element (e.g. mamelons) and to influence the crown's chroma.
i = incisal, i = individual, i = intensive, i = interactive

- Use *carving liquid* to mix the *action-i dentins*, like the *dentins*, into a cream-like consistency.
- *Superwet liquid* may be used for longer spans to enable a longer working time for the restoration.

Consult the layer organiser to optimise the layering scheme.

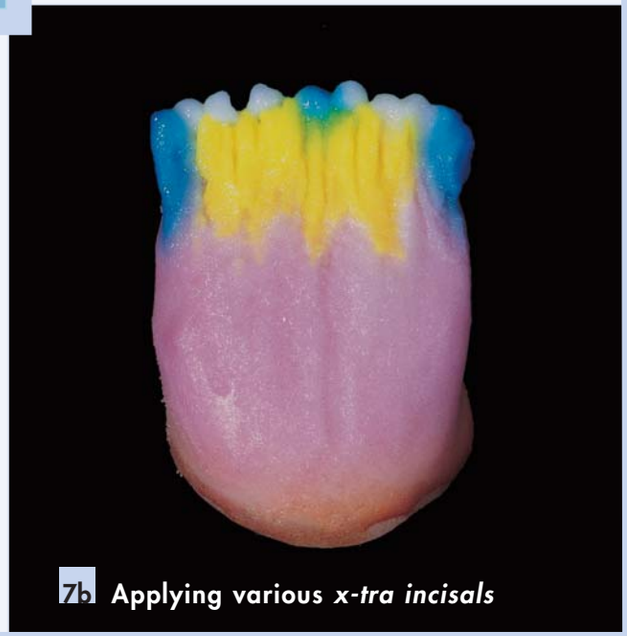
SAKURA interaction
x-tra incisal

**Available colours:** *x-tra i blue, x-tra i red, x-tra i orange, x-tra i grey, x-tra i clear*

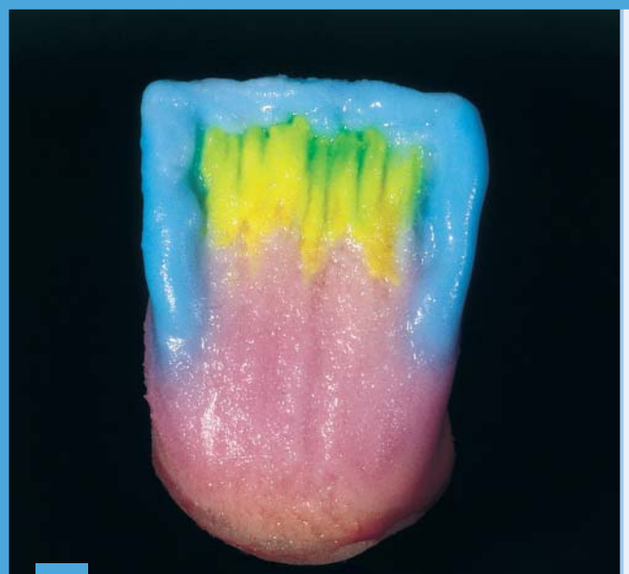
7a *x-tra incisals* to create individual characteristics

## 7 Accurate individual characteristics.

*X-tra incisals* can be divided into those that provide added value (i.e. powders that determine the colour value – see pages 11 and 12) and those that allow for the expression of individual characteristics.
The latter are available in the colours *x-tra i red, x-tra i grey, x-tra i orange, x-tra i blue* en *x-tra i clear*.
*X-tra incisals* are opalescent, making it very easy to add individual characteristics to the incisal sections.
Always cover *x-tra i blue* with an incisal layer.



7b Applying various *x-tra incisals*



8a Covering the edges with *incisal*

SAKURA interaction incisal

**Available colours:** *57, 58, 59, 60*

8b Incisal sandwich structure

## 8a Processing:

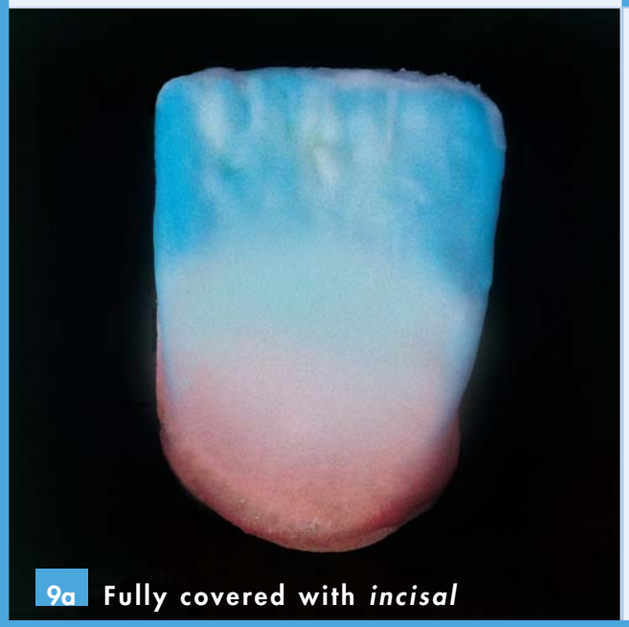
The opalescent properties of Sakura Interaction *incisals* have a natural and aesthetic effect on the crown, even with changing light conditions.
For optimal effect, Sakura Interaction *incisal* powders must be applied in **relatively thin** layers.

- Use *carving liquid* to mix the Sakura Interaction *incisal,* like the *dentin*, into a cream-like consistency.
- *Superwet liquid* may be used for larger objects to enable a longer treatment of the restoration.

Consult the layer organiser to optimise the layering scheme.

## 8b Processing:

The *incisals* can be used together with the *x-tra incisals* to obtain a variegated layered structure.



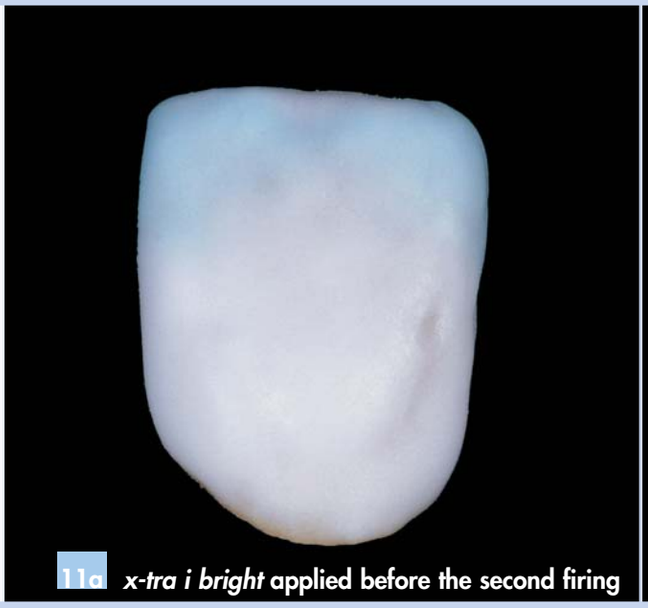
9a Fully covered with *incisal*

## 9 A slightly darker tone:

The colour value can be very accurately controlled using *x-tra incisals bright, medium* and *dark*. For example, you can use *x-tra i dark* if the processing instructions indicate that the cervical should be a bit darker.

9b Palatinal covering

**Lighter? => *x-tra i bright***



11a *x-tra i bright* applied before the second firing

11b The crown after the second firing

10 The crown after the first firing

**Neutral? => *x-tra i medium***

11 The use of *bright, medium* and *dark x-tra incisals* enables the adjustment of the crown's colour in the final stage without having to polish the restoration.

**Firing chart for second phase:**

| Drying | Starting temp. | Vacuum starting temp. | Rate of heat increase |
|---|---|---|---|
| 3–5 min. | 450 °C | 450 °C | 60 °C/min. |

| Final temp. | Retention time | Vacuum | Surface appearance |
|---|---|---|---|
| 845 °C | 1–2 min. | 1–2 min. | matte finish |

10 **Firing chart for first phase:**

| Drying | Starting temp. | Vacuum starting temp. | Rate of heat increase |
|---|---|---|---|
| 5–7 min. | 450 °C | 450 °C | 60 °C/min. |

| Final temp. | Retention time | Vacuum | Surface appearance |
|---|---|---|---|
| 850 °C | 1–2 min. | 1–2 min. | matte finish |

**A slightly darker tone:**

The colour value can be very accurately controlled using *x-tra incisals bright, medium* and *dark*.
For example, you can use *x-tra i dark* if the processing instructions indicate that the cervical should be a bit darker

**Darker? => *x-tra i dark***

**Example: A3 crowns with...**

## Processing:

- Use *carving liquid* to mix Carrara Interaction *correction* into a cream-like consistency.
- Apply the desired quantity to the location to be corrected and condense it thoroughly.
- Fire the material in accordance with the firing chart.

### Firing chart:

| Drying | Starting temp. | Vacuum | Rate of heat increase |
|---|---|---|---|
| 3–5 min. | 450 °C | yes | 60 °C/min. |
| **Final temp.** | **Retention time** | **Vacuum** | **Surface appearance** |
| 780 °C | 1–2 min. | 1 min. | semi-glossy |

The *universal glaze* of Antagon Interaction and Carrara Interaction can **not** be used in combi- nation with Sakura Interaction. Because of the low TEC you can only use Sakura Interaction *glaze*.

## Easy correction material:

Sakura Interaction *correction* is an unpigmented and low-fusing material with physical properties that are compatible with those of Sakura Interaction. It can be used to:

- correct contact points
- correct occlusal or incisal edges
- improve the surface shape

## Shaping the surface: essential for optimal opalescence.

The shape of the surface is key to the restoration's aesthetic properties, especially those related to the incidence of light. The surface structures of the neighbouring elements on the plaster model can be highlighted using silver powder. This helps to determine what the surface structure should be like.

## 12 Processing:

- Mix Sakura Interaction *glaze* and *stain liquid* until it is an even and cream-like mass.
- Apply a thin layer on the surfaces and distribute evenly.
- Fire the material in accordance with the firing chart.

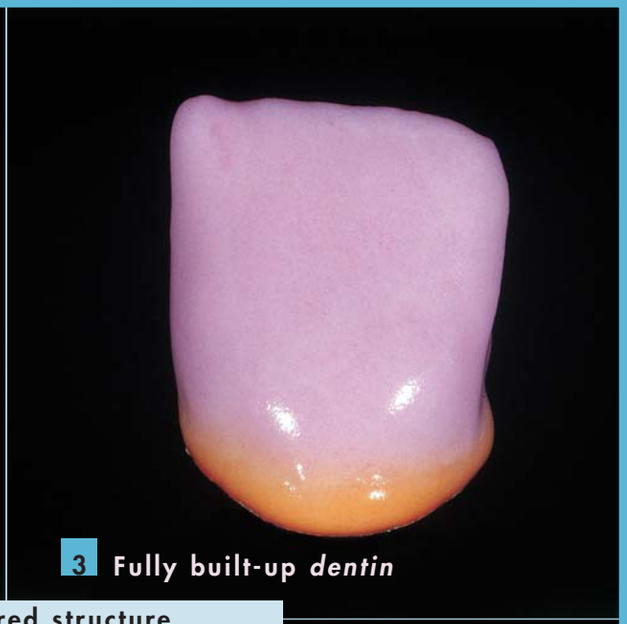
### Firing chart:

| Drying | Starting temp. | Vacuum | Rate of heat increase |
|---|---|---|---|
| 2–3 min. | 450 °C | no | 60 °C/min. |
| **Final temp.** | **Retention time** | **Vacuum** | **Surface appearance** |
| 810 °C | 1–2 min. | no | glossy |

**12 Completed glossy crown**

1 *paste opaque*

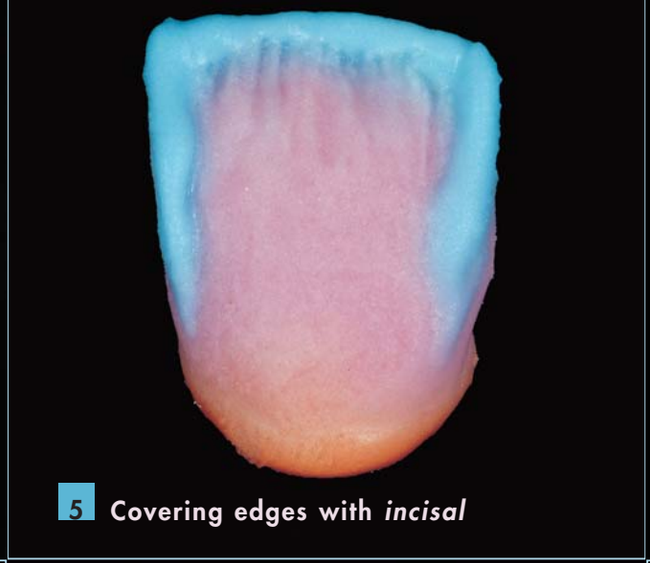
2 *opaque dentin*



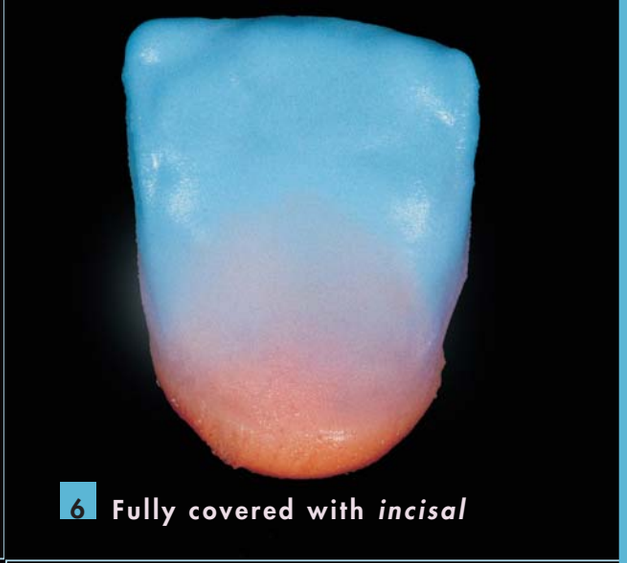
3 Fully built-up *dentin*

Sakura Interaction layering scheme for a standard layered structure

4 Reduced *dentin* (cutback)



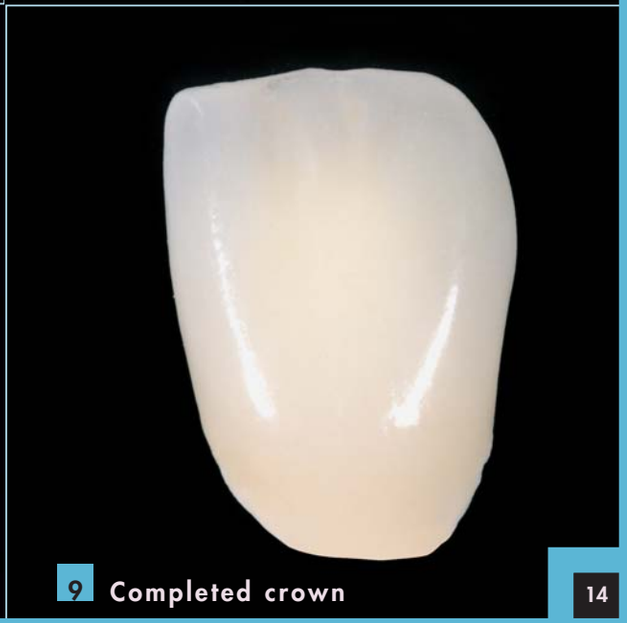
5 Covering edges with *incisal*



6 Fully covered with *incisal*

7 First firing

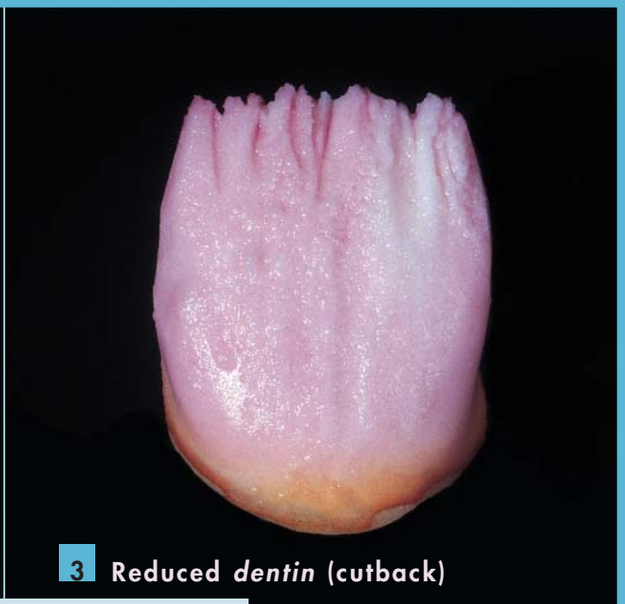
8 Second firing



9 Completed crown

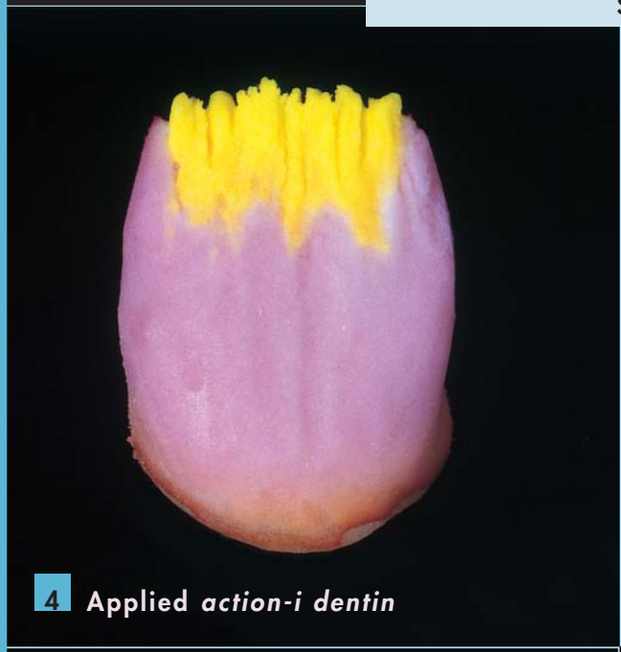
1 Applied *paste opaque*

2 Applying the *opaque dentin*

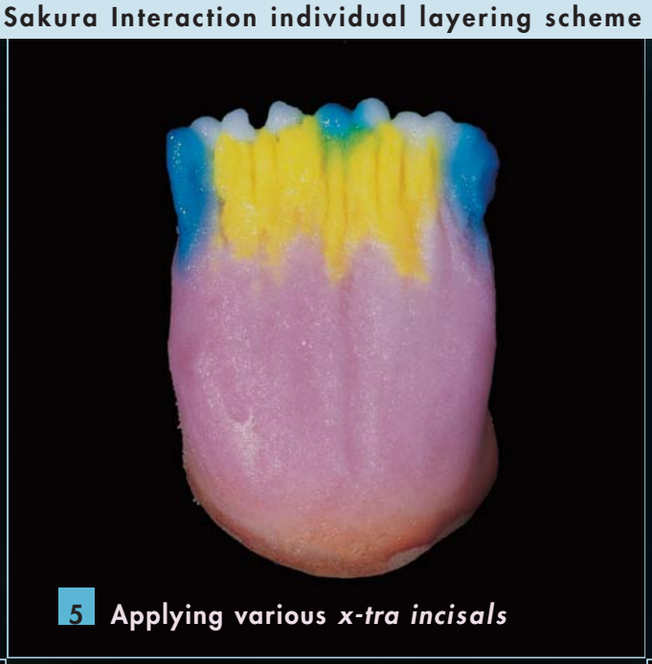


3 Reduced *dentin* (cutback)

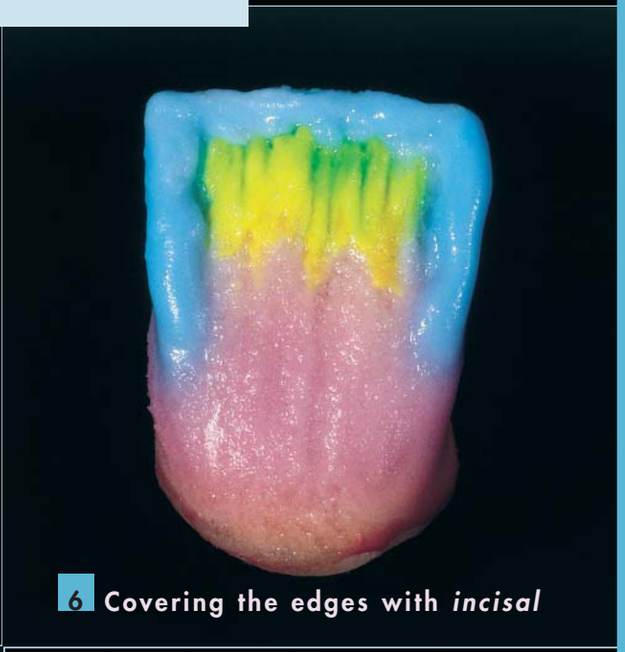
## Sakura Interaction individual layering scheme



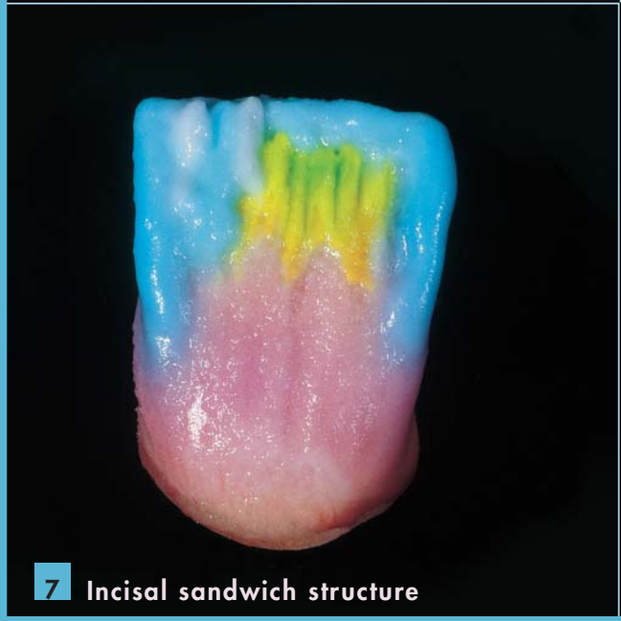
4 Applied *action-i dentin*



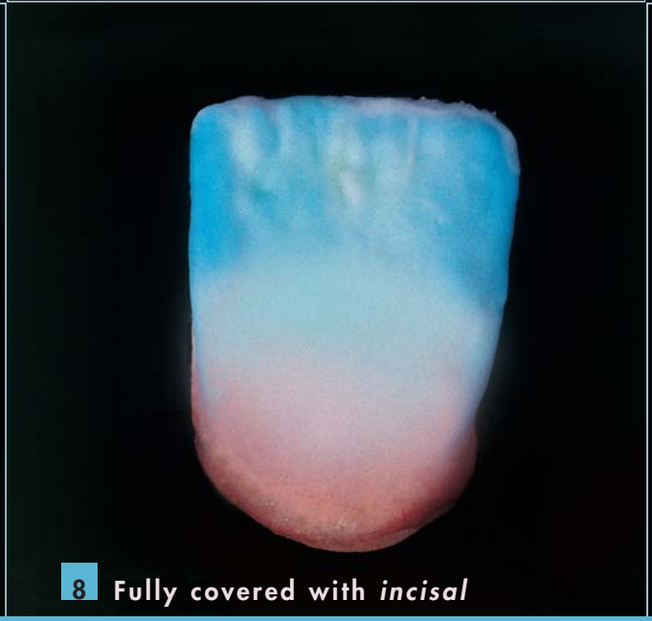
5 Applying various *x-tra incisals*



6 Covering the edges with *incisal*



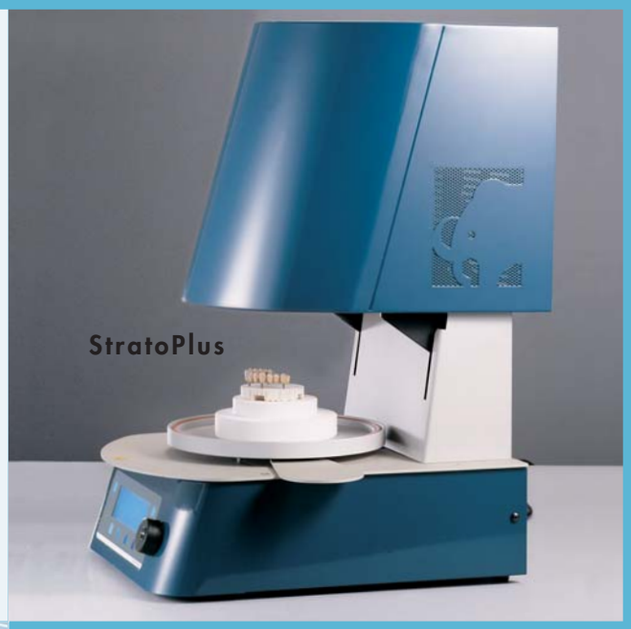
7 Incisal sandwich structure



8 Fully covered with *incisal*

9 Completed glossy crown

| **StratoPlus/StratoPress** (general firing programme) | | Paste opaque | 1st Margin | 2nd Margin | 1st Dentin | 2nd Dentin | Glaze | Correction mass | Margin Correction |
|---|---|---|---|---|---|---|---|---|---|
| Preheat or starting temperature: | (°C) | 400 | 450 | 450 | 450 | 450 | 450 | 450 | 450 |
| Drying and preheating time: | (min) | 7 | 8–10 | 8–10 | 5 | 4 | 4 | 5 | 8 |
| Rate of heat increase: | (°C/min) | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 |
| Final temperature: | (°C) | 920 | 890 | 890 | 850 | 845 | 810 | 780 | 780 |
| Retention time with vac. | (min) | 1 | 1 | 1 | 1 | 1 | | 1 | 1 |
| Retention time without vac.: | (min) | 1 | – | – | 1 | 1 | 1,5 | 1 | – |
| Vacuum starting temperature: | (°C) | 400 | 450 | 450 | 450 | 450 | – | 450 | 450 |
| Vacuum final temperature: | (°C) | 920 | 890 | 890 | 850 | 845 | – | 780 | 780 |




## Important:

**The firing temperatures indicated are target values. Temperatures may vary from one ceramic furnace to another and must be adapted accordingly. Each firing should be cooled down quickly (0 min.).**

## Preparation of sub-structures:

**When firing Sakura Interaction, the firing instructions of the supplier of the zircon oxide sub-structure materials should be observed.**

(This was the case in all tests described in these pages)

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| paste opaque | A1 | A2 | A3 | A3,5 | A4 | B1 | B2 | B3 | B4 | C1 | C2 | C3 | C4 | D2 | D3 | D4 |
| opaque dentin | A1 | A2 | A3 | A3,5 | A4 | B1 | B2 | B3 | B4 | C1 | C2 | C3 | C4 | D2 | D3 | D4 |
| dentin | A1 | A2 | A3 | A3,5 | A4 | B1 | B2 | B3 | B4 | C1 | C2 | C3 | C4 | D2 | D3 | D4 |
| action-i dentin | 1A2 | | 3A4 | | | 1B2 | | 3B4 | | 1C2 | | 3C4 | | 1A2 | 1B2 | 1C2 |
| x-tra incisal | x-tra i blue/x-tra i red/x-tra i grey/x-tra i orange/x-tra i clear | | | | | | | | | | | | | | | |
| | x-tra i bright/x-tra i medium/x-tra i dark | | | | | | | | | | | | | | | |
| incisal | 58 | | 59 | | 60 | 57 | | 59 | | 60 | | 59 | | 60 | | 59 |

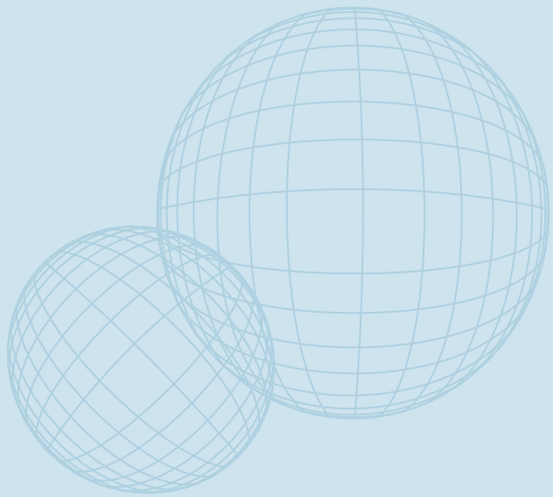
| **Vacumat 2500** | Stand-by temp | Final temp. | Drying time | Heating rate | Retention time | Time vacuum ON |
|---|---|---|---|---|---|---|
| Paste opaque | 400 °C | 920 °C | 7 | 60 | 2 | 1.8 |
| 1st Margin | 450 °C | 890 °C | 8–10 | 60 | 1 | 1.0 |
| 2nd Margin | 450 °C | 890 °C | 8–10 | 60 | 1 | 1.0 |
| 1st Dentin | 450 °C | 850 °C | 5 | 60 | 2 | 1.8 |
| 2nd Dentin | 450 °C | 845 °C | 4 | 60 | 2 | 1.0 |
| Glaze | 450 °C | 810 °C | 4 | 60 | 1.5 | 0.0 |
| Correction mass | 450 °C | 780 °C | 5 | 60 | 2 | 1.0 |
| Margin Correction | 450 °C | 780 °C | 8 | 60 | 1 | 1.0 |

## Important:

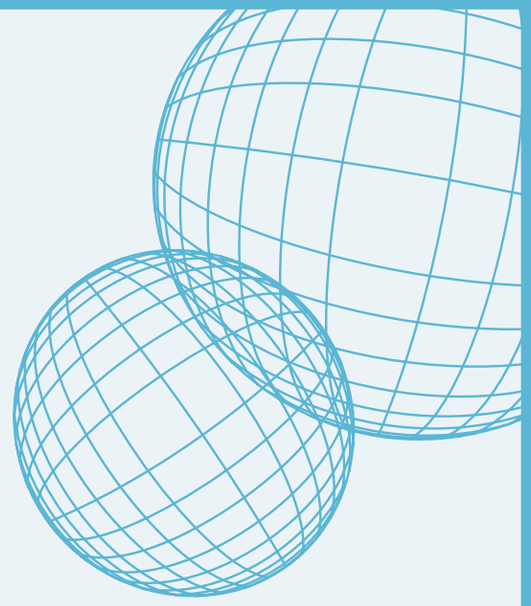
**The firing temperatures indicated are target values. Temperatures may vary from one ceramic furnace to another and must be adapted accordingly. Each firing should be cooled down quickly (0 min.).**

| **Austromat 3001** | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Paste opaque | C450 | T180 | T240·L9V9 | TO60·C890 | T60 | VO | T60 | CO | L0 | T2 | C450 |
| 1st Margin | C450 | T180 | T300·L9V9 | TO60·C890 | T60 | VO | CO | L0 | T2 | C450 | |
| 2nd Margin | C450 | T180 | T300·L9V9 | TO60·C890 | T60 | VO | CO | L0 | T2 | C450 | |
| 1st Dentin | C450 | T120 | T180·L9V9 | TO60·C850 | T60 | VO | T60 | CO | L0 | T2 | C450 |
| 2nd Dentin | C450 | T120 | T120·L9V9 | TO60·C845 | T60 | VO | T60 | CO | L0 | T2 | C450 |
| Glaze | C450 | T120 | T120·L9 | TO60·C810 | T90 | CO | L0 | T2 | C450 | | |
| Correction mass | C450 | T120 | T180·L9V9 | TO60·C780 | T60 | VO | T60 | CO | L0 | T2 | C450 |
| Margin Correction | C450 | T180 | T300·L9V9 | TO60·C780 | T60 | VO | T60 | CO | L0 | T2 | C450 |

| **Programat P90/P95** | Stand-by temp. | Heating rate | Firing temp. | Closing time | Retention time | Vacuum ON | Vacuum OFF |
|---|---|---|---|---|---|---|---|
| Paste opaque | 400 °C | 60 | 920 °C | 7 | 2 | 400 °C | 920 °C |
| 1st Margin | 450 °C | 60 | 890 °C | 8–10 | 1 | 450 °C | 890 °C |
| 2nd Margin | 450 °C | 60 | 890 °C | 8–10 | 1 | 450 °C | 890 °C |
| 1st Dentin | 400 °C | 60 | 850 °C | 5 | 2 | 450 °C | 850 °C |
| 2nd Dentin | 400 °C | 60 | 845 °C | 4 | 2 | 450 °C | 845 °C |
| Glaze | 400 °C | 60 | 810 °C | 4 | 1.5 | | |
| Correction mass | 400 °C | 60 | 780 °C | 5 | 2 | 450 °C | 780 °C |
| Margin Correction | 450 °C | 60 | 780 °C | 8 | 2 | 450 °C | 780 °C |



| **Vacumat 200/250/300** | Stand-by temp. | Final temp. | Drying time | Heating rate | Retention time | Time vacuum ON |
|---|---|---|---|---|---|---|
| Paste opaque | 400 °C | 920 °C | 7 | 8.5 | 2 | 10.0 |
| 1st Margin | 450 °C | 890 °C | 8–10 | 7 | 1 | 7.5 |
| 2nd Margin | 450 °C | 890 °C | 8–10 | 7 | 1 | 7.5 |
| 1st Dentin | 450 °C | 850 °C | 5 | 6.5 | 2 | 8.0 |
| 2nd Dentin | 450 °C | 845 °C | 4 | 6.5 | 2 | 8.0 |
| Glaze | 450 °C | 810 °C | 4 | 6 | 1.5 | 0.0 |
| Correction mass | 450 °C | 780 °C | 5 | 5.0 | 2 | 6.0 |
| Margin Correction | 450 °C | 780 °C | 8 | 5.5 | 2 | 7 |



## Important:

**The firing temperatures indicated are target values. Temperatures may vary from one ceramic furnace to another and must be adapted accordingly. Each firing should be cooled down quickly (0 min.).**

| **Multimat MC II/Mach 2** | Preheat temp. | Drying | Preheating | Time vacuum ON | Retention time | Firing temp. | Heating rate | Vacuum |
|---|---|---|---|---|---|---|---|---|
| Paste opaque | 400 °C | 5 | 2 | 1.0 | 2.0 | 920 °C | 60 | max. |
| 1st Margin | 450 °C | 8 | 2 | 1.0 | 1.0 | 890 °C | 60 | max. |
| 2nd Margin | 450 °C | 8 | 2 | 1.0 | 1.0 | 890 °C | 60 | max. |
| 1st Dentin | 450 °C | 4 | 2 | 1.0 | 2.0 | 850 °C | 60 | max. |
| 2nd Dentin | 450 °C | 3 | 2 | 1.0 | 2.0 | 845 °C | 60 | max. |
| Glaze | 450 °C | 4 | 2 | 0.0 | 2.0 | 810 °C | 60 | – |
| Correction mass | 450 °C | 4 | 2 | 1.0 | 2.0 | 780 °C | 60 | max. |
| Margin Correction | 450 °C | 8 | 2 | 1.0 | 1.0 | 780 °C | 60 | max. |

| **Programat x 1** | Stand-by temp. (°C) | Closing time (min.) | Heating r ate (°C/min.) | Firing temp. (°C) | Retention time (min.) | Vacuum level (%) | Vac. ON (°C) | Vac. OFF (°C) |
|---|---|---|---|---|---|---|---|---|
| Paste opaque | 400 °C | 7:00 | 60 | 920 °C | 1:00 | 100 | 400 | 1° below firing temp. |
| 1st Margin | 450 °C | 8:00–10:00 | 60 | 890 °C | 1:00 | 100 | 450 | 1° below firing temp. |
| 2nd Margin | 450 °C | 8:00–10:00 | 60 | 890 °C | 1:00 | 100 | 450 | 1° below firing temp |
| 1st Dentin | 400 °C | 5:00 | 60 | 850 °C | 1:00 | 100 | 450 | 1° below firing temp |
| 2nd Dentin | 400 °C | 4:00 | 60 | 845 °C | 1:00 | 100 | 450 | 1° below firing temp |
| Glaze | 400 °C | 4:00 | 60 | 810 °C | 0:30 | – | no | no |
| Correction mass | 400 °C | 4:00 | 60 | 780 °C | 1:00 | 100 | 450 | 1° below firing temp |
| Margin Correction | 450 °C | 8:00 | 60 | 780 °C | 1:00 | 100 | 450 | 1° below firing temp |

| Heramat C | | Paste opaque | 1st Margin | 2nd Margin | 1st Dentin | 2nd Dentin | Glaze | Correction mass | Margin Correction |
|---|---|---|---|---|---|---|---|---|---|
| Starting temp. | (°C) | 400 | 450 | 450 | 450 | 450 | 450 | 450 | 450 |
| Drying time | (min) | 6:00 | 8:00–10:00 | 8:00–10:00 | 5:00 | 4:00 | 4:00 | 5:00 | 8:00 |
| Preheating time | (min) | 1:00 | 8:00–10:00 | 8:00–10:00 | 1:00 | 1:00 | 1:00 | 1:00 | 8:00 |
| Heating rate | (°C/min) | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 |
| Final temp. | (°C) | 920 | 890 | 890 | 850 | 845 | 810 | 780 | 790 |
| Retention time | (min) | 2:00 | 1:00 | 1:00 | 2:00 | 2:00 | 1:30 | 2:00 | 2:00 |
| Tempering temp. | (°C) | – | – | – | – | – | – | – | – |
| Tempering time | (min) | – | – | – | – | – | – | – | – |
| Cooling down time | (min) | – | – | – | – | – | – | – | – |
| Vacuum on | (°C) | 400 | 450 | 450 | 450 | 450 | – | 450 | 450 |
| Vacuum off | (°C) | 920 | 890 | 890 | 850 | 845 | – | 780 | 780 |
| Time vacuum ON | (min) | 1:30 | 1:00 | 1:00 | 1:30 | 1:00 | 1:00 | 1:00 | 1:00 |

## Important:

**The firing temperatures indicated are target values. Temperatures may vary from one ceramic furnace to another and must be adapted accordingly. Each firing should be cooled down quickly (0 min.).**

| CergoCompact / CergoPress | | Paste opaque | 1st Margin | 2nd Margin | 1st Dentin | 2nd Dentin | Glaze | Correction mass | Margin Correction |
|---|---|---|---|---|---|---|---|---|---|
| Preheat or starting emperature: | (°C) | 400 | 450 | 450 | 450 | 450 | 450 | 450 | 450 |
| Drying and preheating time: | (min) | 7 | 8–10 | 8–10 | 5 | 4 | 4 | 5 | 8 |
| Rate of heat increase: | (°C/min) | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 |
| Final temperature: | (°C) | 920 | 890 | 890 | 850 | 845 | 810 | 780 | 780 |
| Retention time: | (min) | 2 | 1 | 1 | 2 | 1–2 | 1–2 | 2 | 2 |
| Vacuum starting temperature: | (°C) | 400 | 450 | 450 | 450 | 450 | – | 450 | 450 |
| Vacuum final temperature: | (°C) | 920 | 890 | 890 | 850 | 845 | – | 780 | 780 |

| Austromat M | START | | ↑ | → | Vac | ↗ | FINE | → | ↘1 | ↘2 |
|---|---|---|---|---|---|---|---|---|---|---|
| Paste opaque | 400 | 3 | 3 | 2 | 9 | 60 | 920 | 2:00 | 0 | 0 |
| 1st Margin | 450 | 3 | 4 | 2 | 9 | 60 | 890 | 1:00 | 0 | 0 |
| 2nd Margin | 450 | 3 | 4 | 2 | 9 | 60 | 890 | 1:00 | 0 | 0 |
| 1st Dentin | 450 | 3 | 2 | 2 | 9 | 60 | 850 | 2:00 | 0 | 0 |
| 2nd Dentin | 450 | 3 | 2 | 1 | 9 | 60 | 845 | 2:00 | 0 | 0 |
| Glaze | 450 | 2 | 2 | 1 | 0 | 60 | 810 | 1:30 | 0 | 0 |
| Correction mass | 450 | 2 | 2 | 1 | 9 | 60 | 780 | 2:00 | 0 | 0 |
| Margin Correction | 450 | 3 | 4 | 2 | 9 | 60 | 780 | 2:00 | 0 | 0 |

Visual material: ZTM Jan Schünemann (Bielefeld, Germany), Od. Fabiano Bolzani (Trezzano Rosa, Italy) and Jürgen Gebhardt (Heroldsberg, Germany)

# Sakura Interaction

is the low expanding, low-melting dental ceramic for zircon oxide sub-structures.

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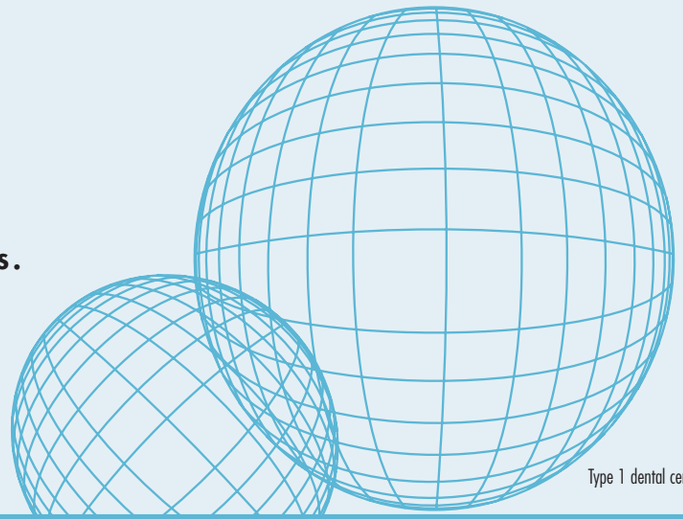

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